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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,005	07/18/2003	Laura Kramer	200309793-1	4590

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EXAMINER	
METZMAIER, DANIEL S	
ART UNIT	**PAPER NUMBER**
1796	

MAIL DATE	DELIVERY MODE
10/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/623,005	KRAMER ET AL.	
	Examiner	Art Unit	
	Daniel S. Metzmaier	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-2 and 4-26 are pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-2 and 4-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 2004/0145088 A1), in view of Gelbart, US 6,328,408; Biegelsen et al, US 6,536,889; or Smith et al, US 6,132,021. Regarding claims 1-2, 4-7, 11, 13, 14, 18; Patel et al. disclose a system for free-form fabrication of solid three-dimensional objects, a method thereof, and a three dimensional object produced, comprising applying a first composition (section 0024) including a reactive build material (section 0047) and ink-

jetting a second composition including a curing agent (section 0054) separately onto a substrate such that contact between the reactive build material and the curing agent occurs (sections 0049-0050), thereby resulting in a reaction that forms a solidifying composition, and repeating these steps to form a solid three dimensional object (section 0062).

See Patel et al (¶ 29 and 30), which broadly discloses interleaving as claimed:

[0029] Different liquid formulations maybe used as the second liquid, applied either at different locations on the same layer or on different layers. Conveniently, the liquid is applied using a linear array of nozzles which are passed over the first liquid layer. Thus different liquids can be supplied to different nozzles and/or different liquids can be applied in respective sequential passes, either over the same liquid layer or succeeding layers.

[0030] The layerwise construction of the three dimensional object can thus be such that different liquids maybe jetted/sprayed imagewise during each layer construction or in different whole layers or multi-layers, thus affording differing micro and macro properties of strength, toughness and flexibility. Random or repeating programmed patterns may be formed to achieve smooth, void free final properties. Deliberately designed repeating voids maybe formed surrounded by toughened resin matrix to yield complex membranes. Other liquids may be jetted/sprayed over the previous, already jetted areas. Such techniques can be used for example to produce tracks or patterns which have different refractive index from the surrounding area, and thus be used for wave-guiding purposes. The patterns may be disposed flat in one layer or be 3 dimensionally disposed over several layers. (Emphasis added).

Patel et al. do not appear to specifically disclose ink-jetting the first reactive material. Patel et al do disclose adjusting the viscosity of the first reactive material to a viscosity included in the range of the viscosity of the ink-jetted curing agent (sections 0053-0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have ink-jetted the first reactive material because Patel et al. teach that the first reactive material can have a viscosity that would enable

ink-jetting, and ink-jetting would save time and produce a more controlled coating, resulting in a higher quality product.

Regarding claims 8-10 and 15-17, Patel et al. disclose the instantly claimed reactive build materials (section 0047).

Regarding claims 12 and 19, Patel et al. disclose adding at least one colorant (section 0017).

The Patel et al reference differs from the claims in the use of an interleaving process.

Gelbart (column 2 to 3, lines 63-20), Biegelsen et al (column 4, lines 10-29), and Smith et al (column 8, lines 15-31) all teach the use of interleaving processes in ink-jetting for the advantages of resolution, the use of a plurality of substances, multicolorant recording, and underprinting color.

The claims do not distinguish the ink-jettable removable material and the first ink-jettable composition. Since the uncured build material is removed and would have been expected to support at least a portion of the solidifying composition, said uncured build material reads on the ink-jettable removable material.

These references are combinable because they teach ink-jet printing. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ an interleaving process in the methods of Patel for the advantage of improving the quality of the ink-jet product formed.

4. Claims 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 2004/0145088 A1) , in view of Gelbart, US 6,328,408; Biegelsen et al,

US 6,536,889; or Smith et al, US 6,132,021, each further in view of Russell et al. (6,375,874 B1). Patel et al., as applied above, are as set forth and incorporated herein. Patel et al. do not appear to specifically disclose a third and forth ink-jettable composition comprising the colors of cyan, magenta, and yellow. Russell et al. disclose a system and process comprising applying polymers by inkjet to produce a three-dimensional object, and that a typical inkjet printer is configured to deliver magenta, yellow, and cyan, so that when combined in various combinations and amounts, a variety of colors can be produced (col.11, lines 8-16). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the commonly used colors of magenta, cyan, and yellow, as taught by Russell et al. in the system and process of Patel et al. because Russell et al. teach that using magenta, cyan, and yellow as colorants in polymers for the production of three dimensional objects through ink-jetting enables one to produce a variety of colors, resulting in a more versatile and higher quality product.

Response to Arguments

5. Applicant's arguments filed 21 August 2007 have been fully considered but they are not persuasive.

6. Applicants (page 7) assert that the Patel et al reference lacks a teaching of employing an interleaving process. This is acknowledged in the rejection.

7. Applicants (page 7) assert that the interleaving process is shown in the figures 2A and 2B and is readily apparent when contrast with figures 1A and 1B and has a

three dimensional appearance in the x-, y- and z-axis. In the absence of dimensions, all matter has some length in the x-, y- and z-axis.

8. Applicants (page 8) assert that the Patel et al reference cannot employ an interleaving process because Patel et al employs a powder. This has not been deemed persuasive since the Patel et al reference teaches several embodiments including multiple sized powders and liquid/liquid systems. Applicants' claims do not exclude the commingling of the materials once deposited, e.g., in interleaved form.

Applicants' arguments regarding the use of powder as not viscous enough and in a sufficiently distinct form to perform an interleaving process are confusing and have not been deemed persuasive since a powder is a solid and the viscosity would have been expected to depend on the concentration in the diluents. The interleaving process is does not preclude the intermingling of the first and second components after deposition. See second full paragraph on page 8 of applicants' arguments wherein the separate build material and curing agents are reactive, i.e., intermingle sufficient to be reactive.

Furthermore, applicants' characterization and interpretation of figures 1A and 1B with 2A and 2B is consistent with the examiner's characterization of Patel et al and applicants claimed invention.

9. Applicants (page 8) further assert Patel et al is distinct because Patel teaches the articles are self-supporting, thus removing the need for additional supports. The use of supports is taught as art known. While Patel et al discloses the lack of required supports, Patel et al does not exclude the use of supports. Furthermore,

10. Applicants' arguments regarding supporting at least a portion of the solidifying composition with an ink-jettable removable material have not been deemed persuasive. With all due respect, Patel et al explicitly discloses use of supporting materials is known in the prior art but not required in the Patel et al process. Known ink-jetting as a means of delivery of the materials for the advantage of high resolution would have been an obvious means of delivering said removable support materials.

Furthermore, the claims do not distinguish the ink-jettable removable material and the first ink-jettable composition. Since the uncured build material is removed and would have been expected to support at least a portion of the solidifying composition, said uncured build material reads on the ink-jettable removable material. Applicants' claims are not commensurate in scope with applicants' arguments.

11. Applicants' conclusion that the examiner has not met the initial burden for a case of *prima facie* obviousness is not deemed persuasive for the above noted reasons.

12. One having ordinary skill in the art would not vacate the advantages of prior art printing practices because the articles resulting from the Patel et al processes are three-dimensional. Each sequential layer could be formed by a prior art printing process as disclosed within the Gelbart, Biegelsen or Smith references.

13. Applicants (page 9) assert the claims 20-26 are also allowable for the reasons asserted regarding claims 1-2 and 4-19. These arguments have been addressed above.

Applicants further assert the since the article of claim 22 is made by the inter-leaving process that claim 22 to the article and the claims 23-26, dependent thereon

should likewise be allowable for the reasons argued previously. This has not been deemed persuasive for the reasons set forth herein above. Furthermore, applicants have the burden of showing that the process imparts unobvious patentable distinction over the prior art articles.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

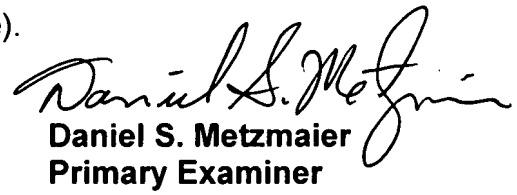
15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel S. Metzmaier
Primary Examiner
Art Unit 1796

DSM